

## CLAIMS

What is claimed is:

1. 1. A method of actively auditing a software system to determine status, the software system comprising a plurality of processes executed in an active processor domain, the method comprising the steps of:
  4. generating an active message for processing by the active processor domain;
  5. generating a modified active message by providing an active time indicator associated with the active message for at least one process of the plurality of processes; and
  7. determining the status of the active processor domain in response to the modified active message.
1. 2. The method of claim 1 wherein the step of determining the status of the active processor domain is responsive to the active time indicator.
1. 3. The method of claim 1 wherein a respective active time indicator is associated with each process of the plurality of processes, and wherein the step of determining the status of the active processor domain is responsive to more than one of the active time indicators.
1. 4. The method of claim 1 wherein the active time indicator comprises a time-stamp indicating the time the at least one process completed processing the active message.
1. 5. The method of claim 1 wherein the active time indicator comprises a time-stamp indicating the time elapsed while the at least one process processed the active message.
1. 6. The method of claim 1 wherein the step of determining the status comprises;
  2. determining a statistical characteristic of the active processor domain; and
  3. determining the status of the active processor domain in response to the statistical characteristic.
1. 7. The method of claim 6 wherein the step of determining a statistical characteristic comprises generating a time average of the duration of the at least one process of the plurality of processes for a plurality of active messages.

1       8.     The method of claim 7 wherein the step of determining a statistical characteristic  
2     comprises generating a standard deviation from the time average.

1       9.     The method of claim 1 further comprising the steps of:  
2              generating a stand-by message for processing in a stand-by processor domain, the stand-  
3     by processor domain comprising a plurality of stand-by processes; and  
4              generating a modified stand-by message by providing a stand-by time indicator for at  
5     least one process of the plurality of stand-by processes in the stand-by domain.

1       10.    The method of claim 9 wherein the step of determining the status of the stand-by  
2     processor domain is responsive to the stand-by time indicator.

1       11.    The method of claim 9 wherein a respective stand-by time indicator is associated with  
2     each process of the plurality of stand-by processes of the stand-by domain and wherein the step  
3     of determining the status of the stand-by processor domain is responsive to at least two of the  
4     stand-by time indicators.

1       12.    The method of claim 9 further comprises the step of transforming the active processor  
2     domain to the stand-by processor domain in response to the modified active message.

1       13.    A system for actively auditing a software system to determine status comprising:  
2     an active processor domain, the active processor domain having at least one processor, the at  
3     least one processor executing at least one process, the at least one process receiving an active  
4     message and generating a modified active message in response thereto;  
5              a time-stamp mechanism in communication with the at least one process and for  
6     providing an active time indicator for use in generation of the modified active message; and  
7              a redundancy manager in communication with the active processor domain, the  
8     redundancy manager determining the status of active processor domain in response to the  
9     modified active message.

1       14.    The system of claim 13 wherein the redundancy manager determines the status of the  
2     active processor domain in response to the active time indicator.

1    15.    The system of claim 13 wherein the active time indicator comprises a time-stamp  
2 indicating the time the at least one process completed processing the active message.

1    16.    The system of claim 13 wherein the active time indicator comprises a time-stamp  
2 indicating the time elapsed while the at least one process processed the active message.

1    17.    The system of claim 13 wherein the redundancy manager determines a statistical  
2 characteristic of the active processor domain and determines the status of the active processor  
3 domain in response to the statistical characteristic.

1    18.    The system of claim 17 wherein the statistical characteristic comprises a time average of  
2 the duration of the at least one process.

1    19.    The system of claim 18 wherein the statistical characteristic comprises a standard  
2 deviation from the time average.

1    20.    The system of claim 13 further comprising a stand-by processor domain, the stand-by  
2 processor domain having at least one processor, the at least one processor executing at least one  
3 stand-by process, the at least one stand-by process receiving a stand-by message and generating a  
4 modified stand-by message in response thereto, and wherein the redundancy manager determines  
5 the status of the stand-by processor domain in response to the modified stand-by message.

1    21.    The system of claim 20 wherein the redundancy manager further comprises a control  
2 determination module, the control determination module transforming the active processor  
3 domain into the stand-by processor domain in response to the modified active message.

1    22.    A system for actively auditing a software system to determine status comprising:  
2 means for executing at least one process in an active processor domain configured to receive an  
3 active message and generate a modified active message in response thereto;  
4            means for time-stamping in communication with the at least one process, the means for  
5 time-stamping generating an active time indicator for use by the means for executing; and  
6            means for the status of the active processor domain in response to the modified active  
7 message.